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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,612	08/22/2003	Tsuguo Watanabe	0505-1233P	8275

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EXAMINER

HO, HA DINH

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/645,612	Applicant(s) WATANABE ET AL.	
	Examiner Ha D. Ho	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 6, 10-14, 16-19 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 10-14, 16-19 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/4/05</u> | 6) <input type="checkbox"/> Other: _____ |

✓

DETAILED ACTION

1. This Office Action is responsive to Applicant's Amendment filed 02/22/05. Claims 4, 7-9, 15 and 20 have been canceled, and claims 22-25 have been added accordingly. Claims 1-3, 5-6, 10-14, 16-19 and 21-25 are currently pending.
2. The indicated allowability of claims 8-10 is withdrawn in view of the newly discovered reference(s) to Machida et al. (Pub. No. US 2002/0010539). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 10, 11, 14, 16, 19 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Machida et al. (Pub. No. US 2002/0010539).

Machida et al show a fuel injection control system/method for an internal combustion engine (Fig. 2), the engine for transmitting a driving force to an output shaft through a transmission (inherent), comprising: means for detecting engine speed (S1, see Fig. 3); means for

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determining a fuel injection quantity as a function of said engine speed (S5); means (33) for discriminating a gear position of the transmission (Figs. 1 and 4); and means for correcting said fuel injection quantity on the basis of the discrimination result of said gear position (S2); means for detecting a throttle opening (S2); and a TH map in which said fuel injection quantity has been registered with the engine speed and the throttle opening as parameters, wherein said fuel injection quantity is determined on the basis of said TH map (see page 2, paragraph 0024, lines 9-14);

Wherein the lower the gear position becomes, the more said correction means reduces the fuel injection quantity (page 1, paragraph 0010).

wherein means for discriminating the gear position discriminates the gear position on the basis of the engine speed and a vehicle speed (see Fig. 4).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosaka (US 4,976,239) in view of Machida et al. (Pub. No. US 2002/0010539).

Hosaka teaches a fuel injection control system/method for an internal combustion engine 3, the engine for transmitting a driving force to an output shaft 5 through a transmission 4,

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comprising: means for detecting engine speed (see col. 7, line 2); means for determining a fuel injection quantity as a function of said engine speed (see col. 12, lines 31-34); means 36 for discriminating a gear position of said transmission; and means for correcting said fuel injection quantity on the basis of the discrimination result of said gear position (see col. 12, lines 45-49); means (31) for detecting a throttle opening; and a control unit 1000 comprising a microcomputer and controlling a fuel injection system (see col. 11, lines 14-16), said microcomputer including the stored data.

Hosaka does not show the control unit including a TH map for determining the fuel injection quantity.

Machida et al show a fuel injection control system/method as set forth in paragraph 4 above including a TH map in which said fuel injection quantity has been registered with the engine speed and the throttle opening as parameters, wherein said fuel injection quantity is determined on the basis of said TH map (see page 2, paragraph 0024, lines 9-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the control unit of Hosaka to have a TH map for determining the fuel injection quantity as taught by Machida et al, since the map is established so that the basic injection time fits when the vehicle speed is high, and the dynamic pressure is not "0" when the vehicle speed is high (page 2, paragraph 0024, lines 14-17).

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7. Claims 1-3, 5-6, 10-14, 16-19 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto (US 5,230,318) in view of Machida et al. (Pub. No. US 2002/0010539).

Iwamoto teaches a fuel injection control system/method for an internal combustion engine 1, the engine for transmitting a driving force to an output shaft through a transmission (inherently), comprising: means for detecting engine speed (see col. 3, lines 40-42); means for determining a fuel injection quantity ($\tau_i \times C_i$) as a function of said engine speed (Fig. 3, steps 230 and 250); means for discriminating a gear position of said transmission (see col. 3, lines 22-27); and means for correcting said fuel injection quantity on the basis of the discrimination result of said gear position (Fig. 3, steps 230, 240 and 260).

Iwamoto teaches a control unit 8 for controlling a fuel injection system. Hosaka does not show the control unit including a TH map for determining the fuel injection quantity.

Machida et al show a fuel injection control system/method as set forth in paragraph 4 above including a TH map in which said fuel injection quantity has been registered with the engine speed and the throttle opening as parameters, wherein said fuel injection quantity is determined on the basis of said TH map (see page 2, paragraph 0024, lines 9-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the control unit of Iwamoto to have a TH map for determining the fuel injection quantity as taught by Machida et al, since the map is established so that the basic injection time fits when the vehicle speed is high, and the dynamic pressure is not "0" when the vehicle speed is high (page 2, paragraph 0024, lines 14-17).

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Iwamoto further shows means for determining a correction factor FPWR as a function of the gear position, and means for multiplying said fuel injection quantity by said correction factor (see Fig. 3, step 240);

wherein means for determining said correction factor determines said correction factor as a function of the gear position and the engine speed (the factor FPWR is determined under the decision that the engine is the high-load region, see col. 5, lines 4-6, and that decision is made based on the gear position and the engine speed, see Fig. 2),

wherein the lower the gear position becomes, the more said correction means reduces the fuel injection quantity (see Fig. 5, col. 4, lines 28-44, and col. 5, lines 24-41),

wherein said means for discriminating the gear position discriminates the gear position on the basis of said engine speed and a vehicle speed (see col. 3, line 45-48).

8. Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosaka (US 4,976,239) in view of Machida et al. (Pub. No. US 2002/0010539) as applied to claims 1 and 16 above, and further in view of Iwamoto (US 5,230,318).

Hosaka teaches means (sensor 36) for discriminating the gear position of the transmission, means for detecting engine speed (see col. 7, line 2), and means for detecting vehicle speed (see col. 21, lines 6-7). Hosaka does not show means for discriminating the gear position discriminates the gear position on the basis of the engine speed and the vehicle speed.

Iwamoto shows means for discriminating the gear position discriminates the gear position on the basis of the engine speed and the vehicle speed (see col. 3, line 45-48).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of Hosaka to have means for discriminating the gear position discriminates the gear position on the basis of the engine speed and the vehicle speed in view of Iwamoto in order to eliminate the gear position sensor to reduce part.

Response to Arguments

9. Applicant's arguments filed 02/22/05 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made (see Claim rejections above).

Communication

10. Submission of your response by facsimile transmission is encouraged. The fax phone numbers for the organization where this application or proceeding is assigned are **(703) 872-9306**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see M.P.E.P. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should include a Certificate of Transmission (M.P.E.P. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to
the Patent and Trademark Office on _____

(Date)

Typed or printed name of person signing this certificate:

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha D. Ho whose telephone number is **571-272-7091**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on **571-272-7095**.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HDH
(703) 305-0738
May 2, 2005


HAHO
PRIMARY EXAMINER

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5/02/05